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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/814,016	03/31/2004	LeeLing Tan	STL10348	5546
7590	07/24/2006		EXAMINER	
Derek J.Berger,Seagate Technology LLC Intellectual Property -COL2LGL 389 Disc Drive Longmont, CO 80503				DAVIS, OCTAVIA L
		ART UNIT	PAPER NUMBER	
		2855		

DATE MAILED: 07/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/814,016	TAN ET AL.	
	Examiner	Art Unit	
	Octavia Davis	2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 5/16/06.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-20 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 31 March 2004 is/are: a) accepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 – 9, 11 – 18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Funches et al (5,305, 160).

Regarding claims 1, 11 and 20, Funches et al disclose a method for compensating for variations in torque capability of voice coil motors comprising a motor(s) 20, 84 that accelerates a control object(s) 40, 70 (See Col. 3, lines 18 – 27 and Col. 7, lines 38 – 53) and a means 134 for measuring a plurality of distances successively traveled by the control object 70 during said acceleration to compensate for variation in motor torque (See Col. 9, lines 54 – 68 and Col. 10, lines 1 – 5 and 49 - 58).

Regarding claims 2, 12 and 13, a constant control input is applied to the motor accelerate the control object 70 at a constant rate of acceleration less than a maximum rate of acceleration that can be obtained by the motor 20 (See Col. 8, lines 53 – 63 and Col. 11, lines 44 – 63).

Regarding claims 3 and 14, uniform operation of the actuator(s) 40, 70 is provided by controlling the current in the actuator coil (See Col. 9, lines 58 – 66).

Regarding claims 4, 5, 15 and 16, measured distances A – J are combined to obtain a measured acceleration of the control object 40 (See Col. 9, lines 54 – 58, Col. 10, lines 15 – 31 and Col. 11, lines 1 – 41

Regarding claims 6 and 17, the measured acceleration is combined with a nominal acceleration of the control object to determine a compensation value  $K_{out}$  (See Col. 10, lines 40 - 58 and Col. 11, lines 1 – 19).

Regarding claims 7 and 8, the compensation value  $K_{out}$  of the measuring step comprises a gain adjustment factor and the control object 40, 70 is accelerated using the gain adjustment factor (See Col. 11, lines 20 – 43 and Col. 12, lines 6 – 19).

Regarding claims 9 and 18, the control object comprises an actuator 40, 70 of a data storage device that supports a data transducer head(s) 30, 78A, 78B adjacent a recording medium 10 (See Col. 7, lines 38 – 64).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 10 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Funches et al (5,305, 160) in view of Kadlec et al (5,684,650).

Regarding claims 10 and 19, Funches et al disclose all of the limitations of these claims except for performing a coarse adjustment routine to arrive at a first compensation value that compensates for said variations in motor torque at a first resolution, and then performing a fine adjustment routine using the first compensation value to arrive at a final compensation value at a second resolution greater than the first resolution. However, Kadlec et al disclose a digital servo

control system for use in disk drives that provides adaptive compensation for a variety of tracking and seek problems found in disk drives comprising sample integrity tester portions constituting a coarse static window calculator and tester 2420 and a fine dynamic window calculator and tester 2430 that filter out measurements that contain large levels of noise (See Kadlec et al, Col. 39, lines 7 – 39).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Funches et al according to the teachings of Kadlec et al for the purpose of, enabling a minimal area of a disk to be subjected to a servo positional sensor information by preventing clearly erroneous measurement from contaminating loop calculations (See Kadlec et al, Col. 39, lines 13 – 15).

#### *Response to Arguments*

5. Applicant's arguments filed 5/16/06 have been fully considered but they are not persuasive. In response to applicant's argument that the references do not disclose "measuring a plurality of distances traveled by the control object", it is the examiner's position that in Funches et al, an acceleration interval is defined for measuring and determining the span distance traveled by a head (not shown, See Col. 6, lines 36 – 45) and heads (78A, 78B, See Col. 7, lines 38 – 47) and compensation for variations in acceleration and deceleration capability of the actuator motor is performed in that VCM control circuitry 100 applies a voltage to the actuator 70 to move the actuator in a timely controlled manner to and over a known number of tracks (See Col. 8, lines 56 – 65 and Col. 10, lines 40 – 68), the actual performance of the actuator 70 in a plurality of radial zones of each track is determined and a set of compensation factors for each zone is set (See Col. 9, lines 54 – 58), the actuator 70 is switched from an acceleration mode to a deceleration mode, the

deceleration mode being implemented at a time that depends on the distance traveled by the head (See Col. 18, lines 9 – 23, See claim 2), the variance from nominal acceleration is repeatedly measured in a number of steps including recording the number of tracks crossed indicative of the span distance (See Col. 11, lines 1 – 43 and Col. 12, lines 5 – 19) and the number of tracks over which the actuator 70 travels over the pre-selected period of time is monitored (See claim 2), thus the references still stand.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

### *Conclusion*

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Horiguchi et al (6,950,264) disclose a disk drive system for controlling seek operations.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Octavia Davis whose telephone number is 571-272-2176. The examiner can

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normally be reached on Mon through Fri from 9 to 5. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz, can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



OD/2855

7/12/06



MAX NOORI  
PRIMARY EXAMINER